REMARKS

Claims 2, 4-5, 7-22, 24-30 are pending in the application, of which Claims 7, 12, 19, 24, 25, 26, 27, and 30 are independent claims. Claims 19-22 and 26 stand withdrawn from consideration, with Claims 24-25, and 30 having been rejoined in the application. Claims 2, 10, and 13 have been rejected under 35 U.S.C. § 112; Claims 7, 11-13, 24-25, 27, and 30 have been rejected under 35 U.S.C. § 102; and Claims 2, 4-5, 8-10, 14-15, 17-18, and 28-29 have been rejected under 35 U.S.C. § 103. In addition, Claim 7 and the Drawings are subject to objections.

In response, the rejections are traversed. Claim 7 and the Drawings have been amended to obviate the objections. Reconsideration is respectfully requested.

Drawing Objections

Figures 1-3 are subject to objections. The Office has requested a replacement Figure 3 that has reference numeral "230" more clearly printed. The Office has also requested replacements for Figures 1-3 designating the figures as prior art. In response, replacement sheets are being filed with this Response.

Acceptance of the replacement drawings and withdrawal of the objections are respectfully requested.

Claim Objection

Claim 7 was objected due to an informality. In response, Claim 7 has been amended to cure a typographical error. A similar amendment has been made to Claim 24.

Reconsideration and withdrawal of the objection are respectfully requested.

Claim Rejections Under Section 112

Claims 2 and 10 stand rejected under 35 U.S.C. § 112, first paragraph, and Claim 13 stands rejected under 35 U.S.C. § 112, second paragraph.

Regarding Claims 2 and 10, the limitation of "about 17%" is supported by the Applicants' Specification, at least at page 2, lines 13 and 24-26.

Regarding Claim 13, the plural "pressures" has been corrected to the singular "pressure" for which an antecedent basis is provided in Claim 12.

Reconsideration and withdrawal of the rejections under section 112 are respectfully requested.

Claim Rejections Under Section 102

Claims 7, 11-13, 24-25, 27, and 30 have been rejected under 35 U.S.C. § 102(b) as being deemed anticipated by U.S. Patent No. 6,055,981 to Laswick et al. The rejections are traversed.

As discussed in prior responses, the Applicants' Specification discloses a pneumatic near-balanced differential pressure valve. As described with reference to FIG. 4, the operation of the valve is determined by the position of a diaphragm. When closed, the diaphragm is seated against a nozzle or end of a gas passageway, which is pressured in the steady-state condition. The opposite side of diaphragm interfaces with a control chamber, such as a timing gas chamber.

The diaphragm is responsive to the pressure in the control chamber. The pressure in the control chamber cycles between being pressurized and having a reduced pressure. In the normal states, the control chamber is pressurized until triggered to begin depressurizing. When the control chamber is pressurized, the diaphragm closes the gas passageway.

The control chamber begins losing pressure in response to an inhalation breath. As the pressure in the control chamber is reduced, the pressure in the gas passageway overcomes the pressure exerted by the control chamber and the valve opens to allow gas to flow from the gas passageway and exit the valve. Because the gas should be delivered at the beginning of the breath so as to reach the lungs, the valve is very sensitive to the pressure in the control chamber. The Applicants describe a pneumatic valve that relies on near-balanced pressure and does not require bias springs or other mechanical assistance to release the diaphragm from the nozzle.

As recited in Claim 7, for example, the Applicants' invention is:

> A pneumatic differential pressure valve to supply a quantity of a medium in response to an inhalation breath, comprising:
>
> a nozzle in communication with a pressurized supply of a medium and having a head for delivering the pressurized supply of the medium to ***a delivery outlet***;
>
> a control chamber capable of being pressurized and then depressurized in response to an inhalation breath; and
>
> ***a diaphragm*** disposed between the nozzle head and the delivery outlet and ***controlled by pressure in the control chamber***, wherein ***the diaphragm pneumatically seals the nozzle head when the control chamber is pressurized and pneumatically releases from the nozzle head in response to a reduction in***

> ***pressure in the control chamber***, and wherein the surface area of the nozzle head in contact with the diaphragm is computed so that the diaphragm pneumatically releases from the nozzle head in response to the inhalation breath ***without mechanical assistance***.

(emphasis added).

In comparison, Laswick discusses an automatic resuscitation device that includes a demand mode that is responsive to a patient's inhalation breath. The device includes a breathing chamber (8) and an accumulation chamber (2) separated by a flapper valve (7). In demand mode, the flapper valve closes in response to the patient's exhalation breath, which causes pressure to build up in the breathing chamber. Gas pressure then builds in the accumulation chamber.

When the patient inhales, pressure drops in the breathing chamber causing the flapper valve to open. The pressurized gas in the accumulation chamber then flows into the breathing chamber and on to the patient.

In demand mode, gas is provided to the accumulation chamber from a demand chamber (99) under control of a demand switch (87). During an inhalation breath, pressure in the accumulation chamber drops because the accumulated gas flows into the breathing chamber. That pressure drop in the accumulation chamber is communicated to the demand switch, opening a nozzle (95), which vents gas from the demand chamber and lowers pressure in the demand chamber. That pressure drop in the demand chamber causes an upwardly biased diaphragm (101) to unseat from a demand valve seal (102) to enable gas to flow from the demand chamber through bores (103) into the accumulation chamber.

An exhalation breath causes the flapper valve to close, thus sealing off the breathing chamber from the accumulation chamber. Pressure can then build in the accumulation chamber until the demand switch closes the nozzle. Once the nozzle is closed, pressure builds in the demand chamber.

The Applicants' claims, however, recite : ***"a diaphragm disposed between the nozzle head and the delivery outlet*** and ***controlled by pressure in the control chamber***, wherein ***the diaphragm pneumatically seals the nozzle head when the control chamber is pressurized and pneumatically releases from the nozzle head in response to a reduction in pressure in the***

control chamber...." Independent Claims 12, 24, and 25 recite similar limitations. The Office Action considers Laswick's demand chamber (99) to be the same as the Applicants' control chamber and Laswick's diaphragm (101) to be the same as the Applicants' diaphragm.

It should be noted that the diaphragm (101) of Laswick is not disposed between Laswick's demand valve seal "nozzle" (95) and breathing chamber "outlet" (8), as would be required according to the Office rejections. Instead, the diaphragm (101) is disposed between the demand chamber (99) and the demand valve seal (95). The only diaphragm disposed as claimed by the Applicants is the flapper valve (7).

In contrast to the claimed invention, however, the flapper valve (7) according to Laswick is not controlled by or related to pressures in the demand chamber. Indeed, according to Laswick, the demand chamber does not exert any forces on the flapper valve. More particularly, the flapper valve in Laswick does not seal when the demand chamber is pressurized or release when the pressure in the demand chamber is reduced. In fact, the demand chamber in Laswick depressurizes while the flapper valve is open, and the demand chamber pressurizes while the flapper valve is closed. The Applicants claim the opposite.

All independent claims (including Claims 27 and 30) recite that the Applicants' diaphragm operates "...**without mechanical assistance**." As noted in the Applicants' Specification at page 9, lines 9-14, and page 11, lines 6-7, a biased diaphragm is a mechanical feature assisting the diaphragm in moving. As discussed above, the Laswick diaphragm (101) is an upwardly biased diaphragm. As such, operation of the Laswick diaphragm (101) is mechanically assisted by way of the bias incorporated into the diaphragm.

For at least the foregoing reasons, Laswick does not teach or suggest the Applicants' claimed invention.

The allowability of the dependent claims follow from allowability of the independent claims from which they depend. Furthermore, the dependent claims recite additional patentable limitations. Because each independent claim recites patentable subject matter, all claims are in condition for allowance.

Reconsideration of the rejections under section 102 is respectfully requested.

Claim Rejections Under Section 103

Claims 2, 4-5, 8-10, 14-15, 17-18, and 28-29 have been rejected under 35 U.S.C. § 103(a). While these dependent claims would be allowable upon allowance of the independent claims from which they depend, certain assertions in the Office Action are erroneous and require comment. The rejections are traversed.

Claims 4-5, 8-9, and 14-15 were rejected under 35 U.S.C. § 103(a) based on Laswick in view of an asserted admission of the Applicants. First, Laswick does not teach or suggest the claimed invention, as discussed above. Second, for any art to be combined with any reference, both must be prior art to the Applicants disclosure.

The Applicants describe and claim a gas delivery valve that includes a filter element in the gas delivery path. In other words, gas passes through the filter element before exiting the valve. In particular, the filter element is disposed in a nozzle that interfaces with a diaphragm in a differential pressure valve. The use of a filter in an oversized nozzle was found to be advantageous in the Applicants' device, as described in the Specification.

Here, the Office is attempting to combine Laswick with the teachings of the Applicants disclosure. The Applicants assertion that aspects of their invention could be applied to the prior art embodiment of their FIG. 2 does not render the Applicants' invention to be in the prior art. Absent the Applicants' own disclosure, there is would have been no motivation in the art to add a filter element (360) to the embodiment of FIG. 2, with or without enlarging the nozzle (115). Using the Applicants' disclosure, including specifics of the filter element, in an obvious rejection is a prohibited application of hindsight and thus the rejections should be withdrawn.

Claims 2 and 10 were rejected under 35 U.S.C. § 103(a) based on Laswick because the Office Action asserts that the use of a nozzle-diaphragm interface of at least 17% of the surface area of the diaphragm would have been obvious. To support the rejections, the Office Action states that "applicant has not disclosed that the 17% of the surface area of the diaphragm in contact with the control chamber provides an advantage, is used for a particular purpose, or solves a stated problem." The Office goes on to conclude that any percentage would work. The Office's statements and conclusions are not supported by the Applicants' disclosure.

The Applicants describe and claims a near-balanced differential pressure valve. In comparison with the prior art, the Applicants disclose that increasing the interface between the

nozzle and the diaphragm, the pneumatic pressures on opposite sides of the diaphragm offer advantages over the prior art. The disclosed arrangement utilizes a small change in differential pressure to result in improved operation of the diaphragm than prior art valves. Also disclosed by the Applicants at least at page 2, lines 11-13 and lines 23-26, are embodiments of the interface percentages of greater than 0.55%, with 17% expressly disclosed as being suitable in a particular embodiment. Certain advantages of the Applicants' invention are expressly listed at page 11, lines 3-25 of the Specification as originally filed. Because the Applicants have disclosed the numerical limitation, it advantages, its purpose, and its solution to a particular problem, the rejections are not supported by facts and should be withdrawn.

Claims 17-18, and 28-29 were rejected under 35 U.S.C. § 103(a) based on Laswick because the Office Action asserts that the ratio of a nozzle head force to the timing gas force of less than 1:2.4 would have been obvious. To support the rejections, the Office Action states that "applicant has not disclosed that the 1:2.4 ratio provides an advantage, is used for a particular purpose, or solves a stated problem." The Office goes on to conclude that any ratio would work. The Office's statements and conclusions are not supported by the Applicants' disclosure.

Similar to the percentage discusses above, the ratio of forces can be used to express the near-balanced relationship of pressures. Again, certain advantages of the Applicants' claimed invention are expressly listed at page 11, lines 3-25 of the Specification as originally filed. Because the Applicants have disclosed the numeric ratio limitation, it advantages, its purpose, and its solution to a particular problem, the rejections are not supported by facts and should be withdrawn.

Reconsideration and withdrawal of the rejections under section 103 are respectfully requested.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,

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